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MIL-STD-2045-17501-1
28 October 1993

MILITARY STANDARD

Information Technology
DoD Standardized Profiles AMH1n(D)
Message Handling Systems (MHS)
Common DoD Messaging

Part 1: MHS Service Support

AMSC N/A

AREA DCPS

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Foreword

This military standard is approved for use by all Departments and Agencies of the Department of Defense (DoD).

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be of use in improving this MIL-STD should be addressed to the:

Joint Interoperability and Engineering Organization (JIEO)
ATTN: TBBD
Building 286
Fort Monmouth, New Jersey 07703-5613

by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this MIL-STD or by memorandum.

This DoD Standardized Profile (DSP) is a functional standard produced by the Data Communications Protocol Standards (DCPS) Technical Management Panel (DTMP) Working Group 2 on Upper Layers. DTMP functional standards are functional groupings of base standards. Referenced base standards may be commercial, DoD or de facto standards, although International Standards (produced by ISO, CCITT, and other bodies) are preferred when possible.

This document forms part of a multipart DSP for MHS covering DoD Messaging requirements AMH1n(D). It is in addition to the current Taxonomy and Framework for International Standardized Profiles.

The current technical content of this document has been derived wherever possible from ISO/IEC ISP 10611. However, this document is based on DoD requirements and differences between the content of this document and ISO/IEC ISP 10611 may exist.

This DSP must be combined with the multipart ISP identified in ISO/IEC TR 10000-2 as “AMH1, Message Handling Systems - Common Messaging” (see also ISO/IEC TR 10000-1, 8.2 for the definition of multipart ISPs). For DoD acquisition purposes, where such differences exist, this DSP shall be the controlling document.

This part of MIL-STD 2045-17501 contains two normative annexes and one informative annex.

The Preparing Activity for this standard is the Data Communication Protocol Standards Technical Management Panel (DTMP). The custodians for the document are identified in the Defense Standardization Program, "Standardization Directory (SD-1)" and are classified in the Federal Supply Classification (FSC) system under Data Communication Protocol Standards (DCPS). Additional information can be obtained from:

Joint Interoperability and Engineering Organization
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Introduction

This DoD Standardized Profile (DSP) is defined within the context of functional standardization, in accordance with the principles specified by ISO/IEC TR 10000, “Framework and Taxonomy of International Standardized Profiles” and MIL-HDBK-829. The context of functional standardization is one part of the overall field of Information Technology (IT) standardization activities - covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards to promote system interoperability and to provide a basis for the development of uniform, internationally recognized system tests.

One of the most important roles for a DSP is to serve as the basis for the development of recognized tests. DSPs also guide implementors in developing systems that fit the needs of the US Department of Defense (DoD). DSPs are produced not simply to ‘legitimize’ a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other DSPs is crucial to the successful realization of this goal.

The specifications in this part of MIL-STD 2045-17501 cover the provision and use of features associated with the Message Transfer (MT) Service (MTS) (as defined in clause 8 of ISO/IEC 10021-1), together with those features associated with intercommunication with Physical Delivery (PD) Services (as defined in clause 10 of ISO/IEC 10021-1). Features which are associated with the Message Store (MS) and User Agent (UA) which are content type-independent are also covered. Features which are specific to a particular content type (including the provision of services by a UA to MHS user) are covered in separate content type-dependent DSPs.

This part of MIL-STD 2045-17501 contains two normative annexes and one informative annex:

Annex A	Elements of Service
Annex B	Amendments and corrigenda
Annex C	Specific DoD Requirements

Information technology - DoD Standardized Profiles AMH1n(D) - Message Handling Systems - Common DoD Messaging

Part 1 : MHS Service Support

1 Scope

1.1 General

This part of MIL-STD 2045-17501 contains the overall specifications of the support of MHS Elements of Service and associated DoD MHS functionality which are generally not appropriate for consideration only from the perspective of a single MHS protocol. These specifications form part of the Common Messaging application functions, as defined in the parts of MIL-STD 2045-17501, which form a common basis for content type-dependent DoD Standardized profiles for MHS that will be developed. Such specifications are in many cases applicable to more than one DoD MHS protocol or are otherwise concerned with component functionality which, although it can be verified via protocol, is not just related to protocol support. They are therefore designed to be referenced in the DoD MHS Common Messaging application profiles, MIL-STD 2045-17501-3, (AMH11(D)), MIL-STD 2045-17501-4, (AMH12(D)), MIL-STD 2045-17501-5, (AMH13(D)), which specify the support of the specific DoD MHS protocols and associated functionality.

The specifications in this part of MIL-STD 2045-17501 are divided into basic requirements, which are required to be supported by all MHS implementations, and a number of optional functional groups, which cover significant discrete areas of related functionality which are not required to be supported by all implementations.

This DSP makes use of the Common Messaging ISP (ISO/IEC ISP 10611). It specifies the additional requirements needed to support DoD Messaging.

1.2 Position within the taxonomy

This part of MIL-STD 2045-17501 is the first part of a multipart DSP for AMH1n(D) Message Handling Systems - Common DoD Messaging. The multipart DSP consists of the following parts:

Part 1 - MHS service support

Part 2 - Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by DoD MHS

Part 3 - AMH11(D) - Requirements for Message Transfer (P1)

Part 4 - AMH12(D) - Requirements for MTS Access (P3)

Part 5 - AMH13(D) - Requirements for MS Access (P7)

This DSP must be combined with the multipart ISP identified in ISO/IEC TR 10000-2 as “AMH1, Message Handling Systems - Common Messaging” (see also ISO/IEC TR 10000-1, 8.2 for the definition of multipart ISPs).

The multipart AMH1 ISP consists of the following parts:

Part 1 - MHS Service Support

Part 2 - Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by MHS

Part 3 - AMH11 - Message Transfer (P1)

Part 4 - AMH12 - MTS Access (P3)

Part 5 - AMH13 - MS Access (P7)

It may be combined with any DoD approved T-Profiles (see ISO/IEC TR 10000) specifying the OSI connection-mode Transport service.

2 Normative references

The following documents contain provisions that, through reference in this text, constitute provisions of this part of MIL-STD 2045-17501. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of MIL-STD 2045-17501 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by DSPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and CCITT maintains published editions of its current Recommendations.

Amendments and corrigenda to the base standards referenced are listed in annex B.

NOTE - References in the body of this part of MIL-STD 2045-17501 to specific clauses of ISO/IEC documents shall be considered to refer also to the corresponding clauses of the equivalent CCITT Recommendations, as noted below, unless otherwise stated.

Government Documents:

MIL-HDBK 829, Volumes 1 , *Mil-Std 2045 Series Documentation, 23 April 1993*

MIL-HDBK 829, Volumes 2 , *Guidelines for Data Communications Protocol Standards (DCPS) DoD Standardized Profiles (DSPs), 23 April 1993*

DoD activities may obtain copies of DoD directives through their own publication channels or from the DoD Single Stock Point, Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Other federal agencies and the public may purchase copies from the U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

International Standards Organization (ISO)

ISO 7498-2: 1990, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 2: Security Architecture.*

ISO/IEC 9594: 1990, *Information technology - The Directory. [see also CCITT Recommendations X.5xx(1988)]*

ISO/IEC 9594-8: 1990, *Information technology - The Directory - Part 8: Authentication framework. [see also CCITT Recommendation X.509(1988)]*

ISO/IEC TR 10000-1: 1990*, Information technology - Framework and taxonomy of International Standardized Profiles -Part 1: Framework.*

ISO/IEC TR 10000-2: 1990*, Information technology - Framework and taxonomy of International Standardized Profiles -Part 2: Taxonomy.*

ISO/IEC 10021-1: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 1: Service Overview. [see also CCITT Recommendation X.400(1988)]*

ISO/IEC 10021-2: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 2: Overall Architecture. [see also CCITT Recommendation X.402(1988)]*

ISO/IEC 10021-4: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 4: Message Transfer System: Abstract Service Definition and Procedures. [see also CCITT Recommendation X.411(1988)]*

ISO/IEC 10021-7: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 7: Interpersonal messaging system. [see also CCITT Recommendation X.420(1988)]*

ISO/IEC Draft pDISP 10611 parts 1-5, September 1992, *Information technology - International Standardized Profiles AMH1n - Message Handling Systems - Common Messaging*

(Application for copies of these documents should be addressed to the American National Standards Institute, 11 West 42nd Street, NY, NY 10036 or to ISO, Van Demonstrate 94, 1013 CN Amsterdam, Netherlands.)

3 Definitions

For the purposes of this part of MIL-STD 2045-17501, the following definitions apply.

Terms used in this part of MIL-STD 2045-17501 are defined in the referenced base standards.

In addition, the following terms are defined:

3.1 General

Basic requirement : an Element of Service, protocol element, procedural element or other identifiable feature specified in the base standards which is required to be supported by all MHS implementations.

Functional group : a specification of one or more related Elements of Service, protocol elements, procedural elements or other identifiable features specified in the base standards which together support a significant optional area of MHS functionality.

NOTE - A functional group can cover any combination of MHS features specified in the base standards for which the effect of implementation can be determined at an external interface - i.e., via a communications protocol (other forms of exposed interface, such as a standardized API, are outside the scope of this version of MIL-STD 2045-17501).

3.2 Support classification

To specify the support level of Elements of Service for this part of MIL-STD 2045-17501, the following terminology is defined.

mandatory support (**m**) :

> **for origination**: a service provider shall be able to make the Element of Service (EoS) available to a service user for invocation; unless otherwise stated, a service user shall be able to invoke the Element of Service;
>
> **for processing**: a service provider shall implement all procedures specified in the base standards which are associated with the provision of the Element of Service (i.e., to be able to provide the full effect of the Element of Service) (This classification is only used in the MTS services.);
>
> **for reception**: a service provider shall be able to make information associated with the Element of Service available to a service user; a service user shall be able to receive such information.

optional support (**o**) : an implementation is not required to support the Element of Service. If support is claimed, then the Element of Service shall be treated as if it were specified as mandatory support.

conditional support (**c**) : the Element of Service shall be supported under the conditions specified in this part of MIL-STD 2045-17501. If these conditions are met, the Element of Service shall be treated as if it were specified as mandatory support. If these conditions are not met, the Element of Service shall be treated as if it were specified as optional support (unless otherwise stated).

out of scope (**i**) : the Element of Service is outside the scope of this part of MIL-STD 2045-17501 - i.e., it will not be the subject of a DSP conformance test. However, the handling of associated protocol elements may be specified separately in the subsequent parts of this DSP.

not applicable (**–**) : the Element of Service is not applicable in the particular context in which this classification is used.

prohibited (x) : the Element of Service may not be used in an implementation claiming conformance to this profile.

4 Abbreviations

84IW	84 Interworking
ACSE	Association Control Service Element
AMH	Application Message Handling
API	Application Programming Interface
ASN.1	Abstract Syntax Notation One
CCITT	International Telegraph and Telephone Consultative Committee
CV	Conversion
DIR	Use of Directory
DL	Distribution List
DoD	Department of Defense
DSP	DoD Standardized Profile
DSPICS	DSP Implementation Conformance Statement
EoS	Element of Service
FG	Functional group
IEC	International Electrotechnical Commission
ISO	International Standards Organization
ISP	International Standardized Profile
LD	Latest Delivery
MHS	Message Handling Systems
MOTIS	Message Oriented Text Interchange System
MS	Message Store
MSP	Message Security Protocol
MT	Message Transfer
MTA	Message Transfer Agent
MTS	Message Transfer System
OSI	Open Systems Interconnection
PD	Physical Delivery
PDAU	Physical Delivery Access Unit
RED	Redirection
RoC	Return of Contents
ROSE	Remote Operations Service Element
RTSE	Reliable Transfer Service Element
SEC	Security
UA	User Agent

Support level for Elements of Service (see 3.2):

m	mandatory support
o	optional support
c	conditional support
i	out of scope
–	not applicable
x	prohibited

5 Conformance

No conformance requirements are specified in this part of MIL-STD 2045-17501.

NOTE - This part of MIL-STD 2045-17501 is a reference specification of the basic requirements and functional groups covered by the AMH1n(D) set of profiles and is additional to the protocol-specific requirements specified in the following parts of MIL-STD 2045-17501. Although this part of MIL-STD 2045-17501 contains normative requirements, there is no separate conformance to this part (i.e., it is not identified in the MHS taxonomy) since such requirements are only significant when referenced in the context of a particular protocol.

Conformance requirements are specified by protocol for each MHS component in the following parts of MIL-STD 2045-17501 with reference to the specifications in this part. Support of the functionality as specified in this part may only be verifiable where the effect of implementation can be determined at a standardized external interface - i.e. via a standard OSI communications protocol. Further, the provision of Elements of Service and other functionality at a service interface will not necessarily be verifiable unless such interface is realized in the form of a standard OSI communications protocol. Other forms of exposed interface (such as a human user interface or a standardized API) may be provided, but are not required for conformance to this version of MIL-STD 2045-17501.

6 Basic requirements

Annex A specifies the basic requirements for support of MHS Elements of Service (EoS) for conformance to MIL-STD 2045-17501 - i.e., the level of support required by all MHS implementations, as appropriate to each type of MHS component (i.e., UA or MS or MTA).

It shall be stated in the DSPICS which content type and encoded information type values are supported.

7 Functional groups

Annex A also specifies any additional requirements for support of MHS EoS if support of an optional functional group (FG) is claimed, as appropriate to each type of MHS component (i.e., MTA or MTS-user). The following clauses summarize the functionality supported by each of the optional FGs and identify any particular requirements or implementation considerations which are outside the scope of formal conformance to MIL-STD 2045-17501. A summary of the functional groups, identifying which may be supported (Y) and which are not applicable (N) for each type of MHS component (i.e. MTA, MS, UA - whether as MTS-user or as MS-user is not distinguished), is given in the following table.

Following the Y or N is an indication of the support classification (mandatory, optional, out of scope, or prohibited) for the functional group in the context of this DoD Messaging profile.

The following clauses summarize the functionality supported by each of the optional FGs and specifies which FGs must be supported at the MTS level to support this DSP.

Table 1 - Summary of AMH1n(D) optional functional groups

Functional Group	MTA	MS	UA
Conversion (CV)	Y(o)	N	N
Distribution List (DL)	Y(o)	N	N
Physical Delivery (PD)	Y(o)	N	Y(o)
Redirection (RED)	Y(m)	N	N
Latest Delivery (LD)	Y(m)	N	Y(o)
Return of Contents (RoC)	Y(x)	N	Y(x)
Security (SEC)	Y(o)	Y(o)	Y(o)
Use of Directory (DIR)	Y(m)	N	Y(m)
84 Interworking (84IW)	Y(o)	N	N

7.1 Conversion (CV)

Support for the Conversion FG is optional in this DSP.

An Implementation conforming to the CV FG shall conform to the Common Messaging CV FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.2 Distribution List (DL)

Support for the Distribution List FG is optional in this DSP.

An Implementation conforming to the DL FG shall conform to the Common Messaging DL FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.3 Physical Delivery (PD)

The Physical Delivery FG is optional for DoD Messaging.

An Implementation conforming to the PD FG shall conform to the Common Messaging PD FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.4 Redirection (RED)

Support for the Redirection FG is mandatory for DoD Messaging.

An Implementation conforming to the RED FG shall conform to the Common Messaging RED FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.5 Latest Delivery (LD)

Support for Latest Delivery FG is mandatory in this DSP.

An implementation conforming to the LD FG shall conform to the Common Messaging LD FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.6 Return of Contents (RoC)

Support for the Return of Contents FG is prohibited for this DSP.

7.7 Security (SEC)

MSP will provide the basic security for DoD Messaging in the US. Therefore support for any of the classes in the Security FG is optional in this DSP.

For additional information about the Security classes and the Security FG see the Common Messaging pDISP 10611-1 MHS Service Support.

7.8 Use of Directory (DIR)

Support for the Directory FG is mandatory in this DSP.

An implementation conforming to the DIR FG shall conform to the Common Messaging DIR FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

7.9 84 Interworking (84IW)

Support for the 84 Interworking FG is optional in this DSP.

An implementation conforming to the 84IW FG shall conform to the Common Messaging 84IW FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in a DoD environment.

8 Naming and Addressing

Support for numeric addresses and directory names is mandatory in addition to the naming and addressing capabilities as specified in clause 8 of ISO/IEC ISP 10611-1.

Annex A

(normative)

Elements of Service

In the event of a discrepancy becoming apparent in the body of this part of MIL-STD 2045-17501 and the tables in this annex, this annex is to take precedence. Only the EoS differences between the Base (ISO/IEC 10611-1) and this DSP are listed.

A.1 MT Elements of Service

In the following tables, the "Basic" column reflects the basic requirements for conformance to this part of MIL-STD 2045-17501 i.e. the minimum level of support required by all MHS implementations (see clause 6). The "Functional Group" column specifies any additional support requirements if support of an optional functional group is claimed (see clause 7). Each column is then further subdivided into support for origination ("Orig"), processing ("Proc") and reception ("Rec") as defined in 3.2, together with the abbreviated name of the functional group ("FG") in the+case of the second column. The origination and reception columns are further subdivided to distinguish the support required for an MTA from that for an MTS-user (the latter refers only to the use of MT services, not whether such services are made available to the MHS user, and may be further qualified in a content type-dependent profile).

Table A.1- Elements of Service Belonging to The Basic MT Service

No additional requirements

Table A.2 - MT Service Optional User Facilities

Element of Service	**Basic**					**FG**	**Functional Group**				
	Orig.		Proc.	Rec.			Orig.		Proc.	Rec.	
	MTS -user	MTA		MTA	MTA -user		MTA	MTA -user		MTA	MTA -user
Probe	x	x	x1	-							
Return of content	x	x	x	-	-	RoC					

1 Note: Reception of Probe at the MTA will be logged as a security violation and no delivery or non-delivery report will be returned.

Table A.3 - Elements of Service Belonging to The Base MH/PD Service Intercommunication

No additional requirements

Table A.4 - Optional User Facilities for MH/PD Service Intercommunication

No additional requirements

Table A.5 - Security Services

No additional requirements

A.2 MS Elements of Service

In the following tables, the "Basic" column reflects the basic requirements for conformance to MIL-STD 2045-17501 -i.e. the minimum level of support required by all MHS implementations (see clause 6). The "Functional Group" column specifies any additional support requirements if support of an optional functional group is claimed (see clause 7), together with the abbreviated name of the functional group ("FG"). Each column is further subdivided to distinguish the support required for an MS from that for an MS-user - i.e. UA (the latter refers only to the use of MS services, not whether such services are made available to the MHS user, and may be further qualified in a content type-dependent profile).

Table A.6 - Base Message Store

Element of Service	Basic		Functional Group		
	UA	MS	FG	UA	MS
Stored Message Listing	m	m			
Stored Message Summary	m	m			

Table A.7 - MS Optional User Facilities

No additional requirements

Annex B

(normative)

Amendments and corrigenda

International Standards are subject to constant review and revision by the ISO/IEC Technical Committees concerned. The following amendments and corrigenda are approved by ISO/IEC JTC1 and are considered as normative references in this part of MIL-STD 2045-17501.

NOTE - Corresponding corrigenda to the equivalent CCITT Recommendations are contained in the joint CCITT/ISO MHS Implementor's Guide Version 8.

MOTIS

ISO/IEC 10021-1/Cor.1:1991

ISO/IEC 10021-1/Cor.2:1991

ISO/IEC 10021-1/Cor.3:1992

ISO/IEC 10021-1/Cor.4:1992

ISO/IEC 10021-2/Cor.1:1991

ISO/IEC 10021-2/Cor.2:1991

ISO/IEC 10021-2/Cor.3:1992

ISO/IEC 10021-2/Cor.4:1992

ISO/IEC 10021-4/Cor.1:1991

ISO/IEC 10021-4/Cor.2:1991

ISO/IEC 10021-4/Cor.3:1992

ISO/IEC 10021-4/Cor.4:1992

ISO/IEC 10021-5/Cor.1:1991

ISO/IEC 10021-5/Cor.2:1991

ISO/IEC 10021-5/Cor.3:1992

ISO/IEC 10021-5/Cor.4:1992

Annex C

(Informative)

Specific DoD Requirements

Quality of Service (QoS), Security and other unique DoD requirements are addressed with the modifications to ISO/IEC ISP 10611. Listed below are the changes that have been made along with the rationale behind each modification:

C.1 Quality of Service.

1. **Mandatory Functional Groups:** The Redirection, Latest Delivery and Use of Directory functional groups are classified as mandatory to assist in guaranteeing delivery.

2. **Prohibited Functional Groups:** The prohibition of the Return of Content functional group will aid in the reduction of message traffic and bandwidth usage associated with a MHS.

3. **Prohibited Elements of Service (EoS):** The prohibition of the Return of Content EoS will aid in the reduction of message traffic and bandwidth usage associated with a MHS.

4. **Mandatory support for 1988 Implementations:** Ensures more uniform level of Quality of Service.

5. **Mandatory support for numeric O/R addresses:** Numeric addresses will aid in the reduction of bandwidth usage.

6. **Mandatory support for Directory names:** Promotes ease of use for addressing and obtaining address information.

C.2 Security.

1. **Mandatory Functional Groups:** The Use of Directory functional group will also assist in obtaining security information required for delivery.

2. **Prohibited Elements of Service (EoS):** The use of the probe EoS is prohibited due to security reasons.